We claim:

1. A drive control for an electric drive having a high level of control dynamics in the form of a meshed control structure comprising a rotational speed control loop, a current control loop arranged inside said rotational speed control loop, the rotational speed control loop comprising a controller with a proportional component and integral component as well as a phase saving lowpass filter for suppressing resonances in the controlled system, said filter tuned to the resonances to be suppressed with regard to frequency range and amplitude reduction.

2. The drive control according to claim 1, wherein said phase saving lowpass filter is a PDT2 element.

3. The drive control according to claim 2, wherein the rotational speed control is configured as a digital controller with a processor which implements the PDT2 element in accordance with the following second order differential equation:

$$u_k = V_F * (e_k + a_1 e_{k-1} + a_0 e_{k-2}) - u_{k-1} b_1 - u_{k-2} b_0 ,$$

where u_k is the filter output in the computing cycle k, and e_k is the filter input in the computing cycle k.

4. The drive control according to claim 1, wherein said phase saving lowpass filter is a Cauer filter.

5. The drive control according to claim 4, wherein said Cauer filter is of a second order.

6. The drive control according to claim 5, wherein the rotational speed control is configured as a digital controller with a processor which implements the Cauer filter in accordance with the following second order differential equation:

$$u_k = a_0u_{k-1} + a_1u_{k-2} + b_0e_k + b_1e_{k-1} + b_2e_{k-2},$$

where u_k is the filter output in the computing cycle k, and e_k is the filter input in the computing cycle k.

7. The drive control according to claim 4, wherein said Cauer filter is of an eighth order.

8. The drive control according to claim 7, wherein the rotational speed control is configured as a digital controller with a processor which implements the Cauer filter in accordance with the following eighth order differential equation:

$$u_k = a_0u_{k-1} + a_1u_{k-2} + \ldots + a_7u_{k-7} + b_0e_k + b_1e_{k-1} + \ldots + b_8e_{k-8},$$

where u_k is the filter output in the computing cycle k, and e_k is the filter input in the computing cycle k.

9. The drive control according to claim 1, wherein said electric drive drives a device selected from the group consisting of a numerically controlled machine tool and a robot.

10. A method for suppressing resonances in the controlled system of a control for an electric drive comprising introducing a PDT2 filtering element into the control system.

11. A method for suppressing resonances resonances in the controlled system of a rotational speed control for an electric drive comprising introducing a PDT2 filtering element into the control system.

12. A method for suppressing resonances in the controlled system of a control for an electric drive comprising introducing a Cauer filter into the control system.

13. A method for suppressing resonances resonances in the controlled system of a rotational speed control for an electric drive comprising introducing a Cauer filter into the control system.